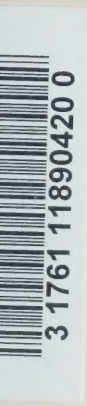


Educational Resources Allocation System Task Force

Working Paper No. 5

The Initial Stage in Implementing an E.R.A.S.

November 1974

Preface

The purpose of this paper is to stimulate thought, discussion, and debate. Unlike the four previous papers, this one discusses concepts that represent some changes in terminology and emphasis from *An Initial Statement* of the E.R.A.S. Task Force (revised edition, March 1973). Your reactions to this paper are essential if the final report of the Task Force in 1975 is to be of value to schools of this province.

An Initial Statement (revised, March 1973) of the E.R.A.S. Task Force provides an overview and a rationale for an educational resources allocation system. It describes an E.R.A.S. from a conceptual viewpoint without discussing its implementation within an educational system that has existing organizational procedures.

The present document describes an educational resources allocation system from the standpoint of the experiences acquired from pilot project activities, discussions with school personnel, and investigation of ongoing activities similar to E.R.A.S. in other jurisdictions, all of which have tempered and shaped the ideas contained in it.

While the previous four working papers offer detailed discussions of the four activities that comprise the initial stage of implementation, the major purpose of this paper is to emphasize the *integration* of these activities—integration into an interacting process that forms the basis of an educational resources allocation system.

A Rationale for a Systems Approach

In our society the demands for change are ever present. What is needed is an effective method for considering and responding to the demand for change. According to some, a systems approach would provide such a method: by this means, needs are identified, problems are selected, requirements for a problem's solution are determined, various alternatives are considered, solutions are chosen and implemented, results are evaluated, and required revisions are instituted to reduce or eliminate originally identified needs.

Figure 1, below, depicts a simple systems model. One of the keystones in a problem-solving procedure is the development of a more refined basis for being able to analyse what changes, if any, are required, *i.e.,* identifying needs. The initial stage in implementing an E.R.A.S. develops such a basis.

R. A. Kaufman, in his book *Educational System Planning*, discusses the matter of change in education and relates it to the requirement for adequate planning:

As educators we can deal with change in several ways. We can be spectators to change, or we may be participants in it. All too often we are spectators and are swept along with conditions that cause us to constantly react *to situational crises, or even to delay until others make decisions for us.*

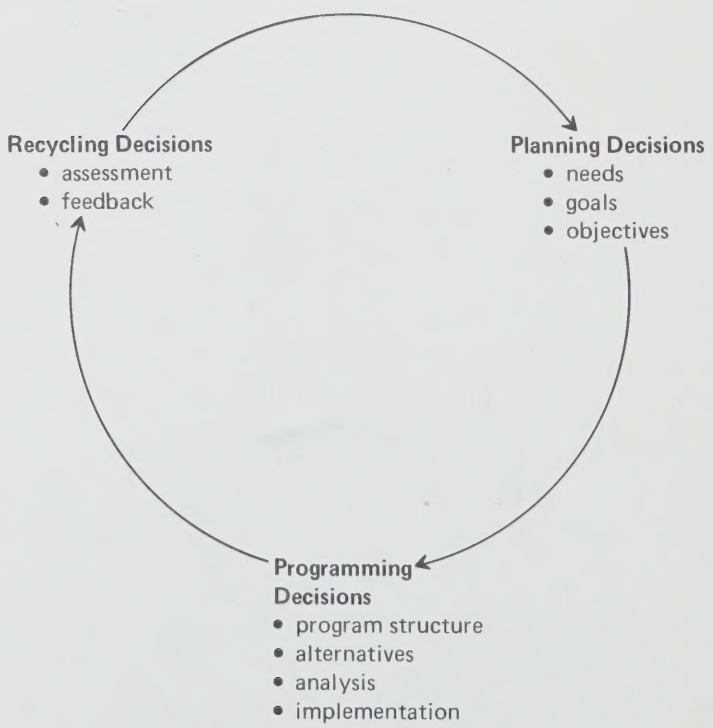


Figure 1: A Systematic Decision-Making Model

Most educational agencies today are involved in change. Students and teachers are becoming more organized in their demands for change, and many special-interest citizen groups exert pressure for and against educational programs and procedures.

Changes are demanded of educators frequently, as if a single special topic or approach were the only critical element of an educational program.

It is common today to see educational codes growing bulkier and more intricate. Legislators are passing laws concerning educational practices and procedures at a rate that requires most educators to be speed readers, oracles, and magicians.

The social reformer is pressing for changes in curriculum, and an equal and opposite reaction comes from other groups wanting a change back to "the good old days". Wherever we are in education, there are pressures for us to be elsewhere.

*If we simply react to demands for change, a type of anarchy tends to result in which we try to be everywhere at the same time and probably satisfy none of our clients (*i.e., *those whom we are attempting to serve).*

Action, *on the other hand, requires purpose, confidence, and results. When we* act *rather than* react, *we become accountable for both the educational processes and the educational products. The responsibility is ours; we make a professional commitment.*

An action-oriented approach to education requires that systematic and formal planning, design, implementation, evaluation, and revisions take place. There is a constant effort to achieve relevancy and practicality for the learners, so that they may survive and, ideally, contribute in society when they leave our educational agencies. Open, observable, and accountable, a system approach strives to identify priority needs and requirements and attempts to meet the needs efficiently and effectively. It allows for temporary failure in that it signals the requirement for revision when the system fails to meet the needs. The cliché that change is inevitable is still appropriate. The question for educators seems to be whether we will be the masters or the victims of change.

Change is apparently an extremely painful experience for most people. When an educator decides to change (or innovate), he must be prepared to meet resistance from many sources—his teachers, his administrators, his board, and even the members of his community. Since a system approach is a process for planned change, both the process itself and its outcomes will be questioned.

The threat from change is unfortunately a necessary price of relevancy. To remain static is to await decay and evolutionary extinction; and to innovate and act to increase our responsiveness to other people is to invite criticism.

Planned change seems to be a professional responsibility, and it is suggested that a system approach will help provide the educator with the necessary tools and assurances that he will plan change well.

Action has greatest utility when valid data are used to predict practical and realistic results. A system approach, which is logical rather than emotional, is difficult to "sell" to some educators and citizens because many tend to operate on an emotional or "felt-need" basis. Yet progress has been made by the individual who, armed only with a valid requirement and a useful process, has set out and achieved an appropriate change. "Find a need and fill it" has been good advice that has been given to young citizens for some time. This approach to planning provides a process for finding the needs and the best way of meeting them.

Planning starts with the identification of needs. A needs assessment provides data for identifying and subsequently eliminating high-priority needs in our world of concern.

Needs, when documented, provide the basic information for setting valid goals to better assure us that our educational "product" is relevant.

Not to plan at all, or not to plan on the basis of defining individual needs and characteristics is to chance the degradation of the person and his happiness, dignity, potential, and ability. A system approach, however, is only a process for identifying and resolving educational problems, and it can be only as functional and valid as the people using it allow and require. As L. E. Shuck states, "Planning is just a substitute for good luck!" As a tool for change and problem solving, (problem solving as defined here is a process of going from a current condition to a required condition) a system approach can be useful to assure that change is humanely planned and valid.[1]

[1]R. A. Kaufman, *Educational System Planning* (Englewood Cliffs, N.J.: Prentice-Hall, 1972), pp. 3-5.

Definition of an E.R.A.S.

An E.R.A.S. is concerned with increasing the effectiveness of school programs and the support services that bear on those instructional programs.

For purposes of illustration, a department, school, or family of schools could say, "We have an E.R.A.S. in complete operation", if all of the following conditions exist.

—We are using written statements of our philosophy and our intentions to guide the development of our activities and assess the success of these activities.

Statements of our goals and objectives are useful only if they can and do guide our actions. If we seek absolute perfection in our goal statements, we may have no time or energy to do anything else. On the other

hand, the more clearly we can state our objectives, the easier it is to meet them.

—We have identified and described the activities (educational and supporting) within our school in terms of their relationship to each other and to our philosophy and intentions.

We need to develop an overview of how the whole system works, how each part of a school system relates to the others, and what the role of each part is. Evaluation of school system effectiveness is possible only if roles are clearly defined in relation to the goals of the system.

—We regularly evaluate the following:

a) our philosophies and intentions to see that they are useful and that they relate to student learning requirements;

b) our activities to see if they are achieving the desired learning results;

c) the evaluation procedures themselves—What is being evaluated? When? How? By whom?

d) the nature and extent of the use of available resources.

The information obtained from evaluation is used for making decisions with respect to (a), (b), (c), (d) above.

Evaluation should be viewed as an aid in reaching decisions.

—We use the activities that were identified and described as the basis for our financial reporting.

We should keep track of how and where we use our resources. Financial accounting is simply a record, in monetary terms, of how we use our resources—personnel, time, materials, equipment, facilities.

—When we find that some improvement should be made with respect to any activity, we try to define, in terms of our philosophy and intentions, the exact nature of the improvement and its importance relative to all other activities.

The clearer our understanding is of the needs to be met, the better able we will be to achieve our purposes.

—We consider a variety of ways to bring about the desired improvement. This consideration includes:

a) the *creative* exercise of proposing changes in activities;

b) the *analytical* exercise of defining what resources are available and what constraints exist at that time;

c) the *prognostic* exercise of identifying the possible results of each alternative.

This is the most challenging of the conditions; it is also the heart of the matter. Our concern is to find the best way of attaining our goals. Good planning will increase effectiveness.

—We select the most feasible alternative and proceed with it.

An E.R.A.S. offers a strategy for decision making. Making decisions means making choices.

—Our budget reflects our planning, including the changes we have made, the priorities we have established, and the resulting framework that identifies and describes our activities.

If decisions are to be implemented, the planning and allocation of resources for our activities is a crucial part of the decision-making process.

—The above conditions exist continuously through subsequent evaluations.

An E.R.A.S. is a cyclic set of activities whereby our plans and our activities are regularly reviewed and assessed with a view to increasing the effectiveness of our efforts.

The key to the effectiveness of a systems approach such as an E.R.A.S. is the *integration* of the above activities. For example, stating intentions (writing goals and objectives) is valid only to the extent that such goals are *taken into account* in the planning, implementation, and evaluation of programs. Similarly the framework that identifies the educational and supporting activities of the school is valid only if it is *used* for evaluation, the establishment of priorities, the development of programs, and accounting and budgeting. Each activity in a systems approach should be viewed as a means, not an end.

Implementation of an E.R.A.S.

What to Implement: The Initial Stage of an E.R.A.S.

If the nine conditions (outlined on pages 2-3) are present in an educational organization, be it in a single classroom or throughout a school system, then the organization has an E.R.A.S. in operation. To initiate an E.R.A.S., an educational organization should examine present operations in terms of the first four conditions; that is, members of the organization should come to a clearer understanding of the goals and objectives, program structure, evaluation procedures, and the use of resources. The rationale for starting with an examination of an existing situation lies in the assumption that such an examination will be helpful for determining the improvements needed. For example, an examination of goal statements may point to the need to make them more effective as aids in the development of learning experiences.

Gaps between the actual situation and the situation desired constitute needs that members of an educational organization should consider. The identification of specific needs is the final step in the initial stage of an E.R.A.S., which is depicted in Figure 2.

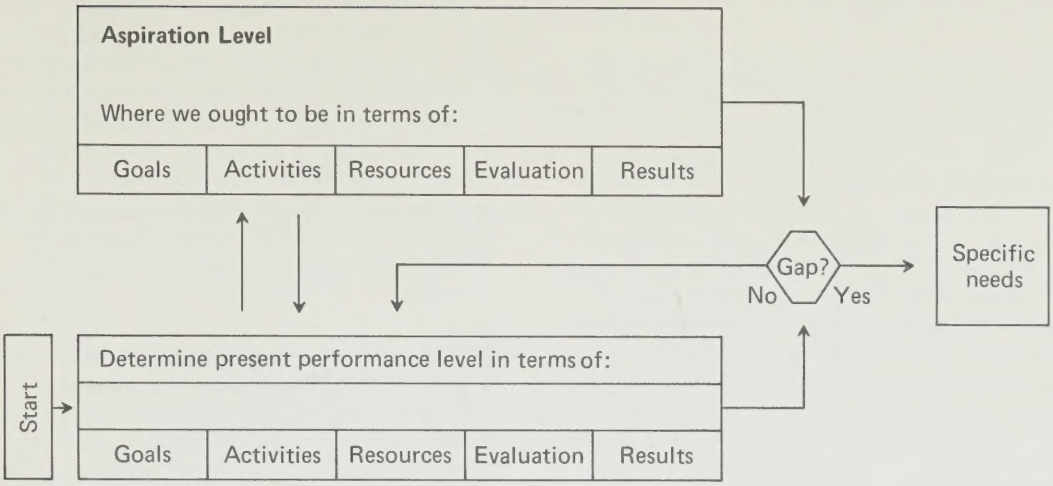


Figure 2: Needs Assessment:
The Initial Stage of an E.R.A.S.

One purpose of the initial stage is to generate information that will enable gaps to be identified. Such information is based on activities that consider the following four factors:

—goals and objectives
—program structure
—evaluation
—program accounting.

In working through the four initial activities, we would caution against spending too much time on any one activity or repeating or neglecting activities that have already been carried out.

For example, the definition of goals and objectives can be a time-consuming activity, which, when carried to the extreme, can result in the continual writing and rewriting of goals or objectives to such an extent that they become irrelevant.

In another vein, it is possible that some evaluation activities have already taken place, particularly if the organizational unit under consideration is undergoing review. This evaluation information should be incorporated into the E.R.A.S. development.

Thus, the basic premise for the initial stage should be that although some information is generated by each of the four activities, a time-consuming, in-depth approach to each of these activities is not intended. However, some data from all four activities, each of which is discussed in detail in the four previous working papers of the E.R.A.S. Task Force, should be evident initially. As part of the initial stage of development, the activities will now be considered in terms of their relationship to one another and in terms of the other components of an E.R.A.S. that can be considered once the initial stage is completed.

i) *Goals and Objectives* (For a more detailed description of this activity, see Working Paper No. 1, *Goals and Objectives for School Systems*.)

Without discounting the value of the personal interaction that takes place during the definition of goals and objectives, it should be recognized that the main reason for such activities is to clarify educational philosophy and educational intent.

All other activities in the planning and decision-making process will eventually require statements of goals and objectives as points of reference. However, since goals and objectives must be regularly assessed for possible re-definition, it is suggested that a pragmatic viewpoint be adopted initially. It may not be possible, within a realistic period of time, to prepare "perfect" statements of goals and objectives.

The decision concerning where to start this activity—with the philosophy, the goals, or the more specific objectives—will depend upon several factors (*e.g.*, the presence or absence of such statements; positions adopted regarding centralization vs. decentralization). If statements of school system philosophy or statements of intent for particular areas of the school system already exist, it seems best to use these, if possible, and develop or add to them as the other activities in the initial phase are conducted.

Two main questions should guide the consideration of statements of goals and objectives:

1. Does each statement indicate why we are conducting a particular activity?

2. Does each statement assist us in assessing the extent to which we are meeting our educational aims?

ii) *Program Structure*

As defined in the E.R.A.S. Working Paper No. 2, a program structure is "a formal classification of the activities undertaken within a school system" that "should lend itself to graphic illustration in a chart or diagram form". Since the identification of a program structure is an activity that is usually new to school system personnel, the need to recognize its significance in terms of the overall process is essential. If goals and objectives provide the answer to the question, "Why do we operate certain programs?", the program structure answers the question, "What programs do we operate?". It provides the framework within which program development, evaluation, and resource allocation decisions can be made.

Figure 3 presents part of a school's program structure, which might evolve from such programs as Arts, Social and Environmental Studies, Communications, and Pure and Applied Sciences. The sub-programs of History, Art, Science, and English are broken down to show four frameworks for describing learning activities within the classroom. In the diagram (pages 6-7), the sides of each framework are left open to indicate that a teacher may modify a program by adding or taking away from the themes or concepts, units, areas of investigation, and activities.

A classroom program can be implemented by having students undertake learning experiences that can be developed in terms of the headings at the sides of the framework. For example, in a studio art program, one group of students in a class might explore the theme "Dreams and Visions" through the activities of drawing, painting, and puppetry. Other individuals or groups in the class might pursue the same or different themes through other kinds of art activities.

This example suggests that programs may vary from classroom to classroom in at least two ways. First, programs may differ in terms of the headings of the program frameworks (different themes, activities, etc.). Second, programs with identical frameworks may still vary from classroom to classroom in terms of the patterns of learning experiences that are developed within the frameworks, as students conduct individual and group projects.

For the teacher, the goals and objectives of the program are the main guide to building a program framework and supporting the patterns of learning experiences that emerge from the framework. The program framework, in turn, enables the teacher to develop evaluation procedures for assessing the effectiveness of the program and the achievements of the students.

Figure 3: Part of a School's Program Structure: An Example

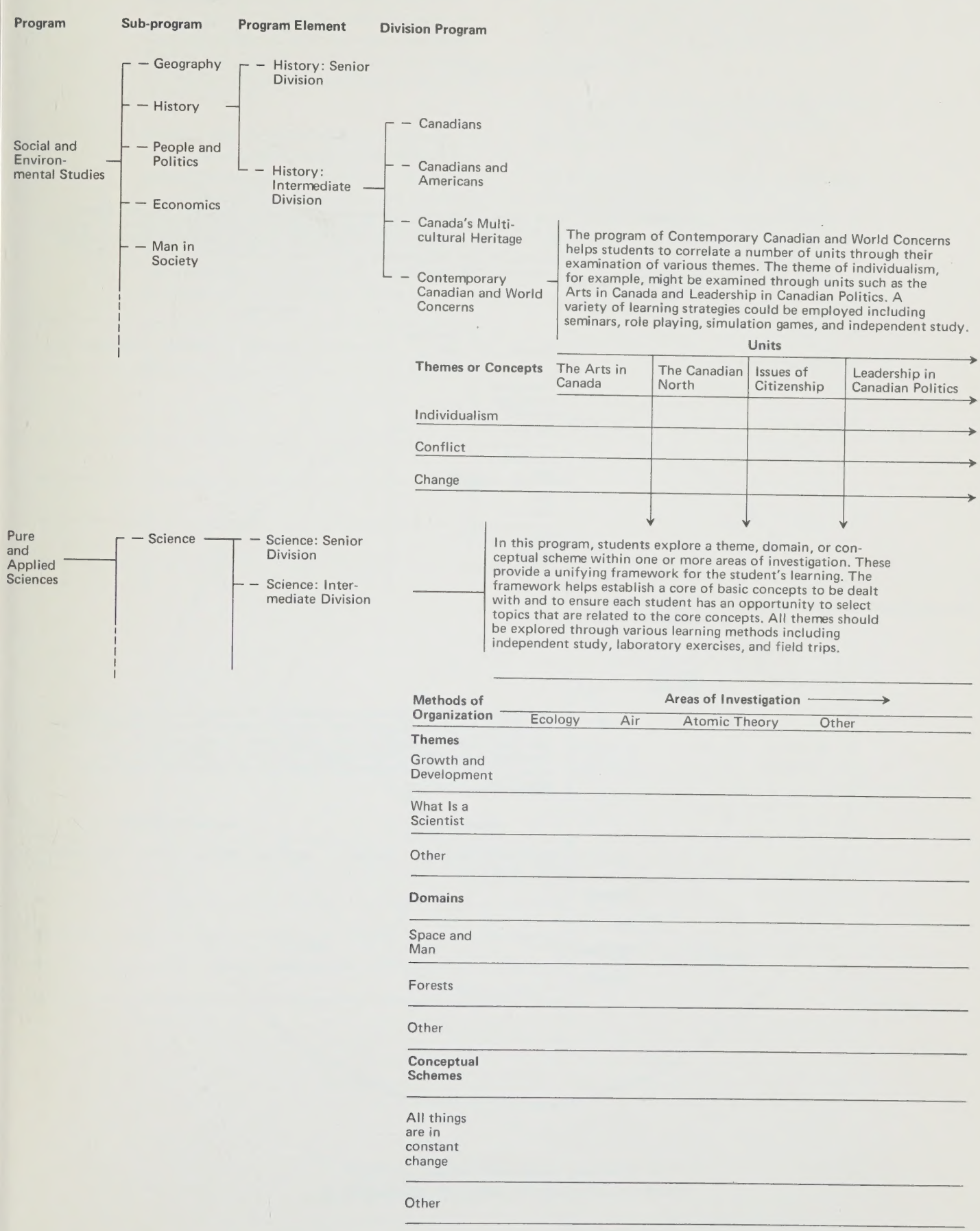
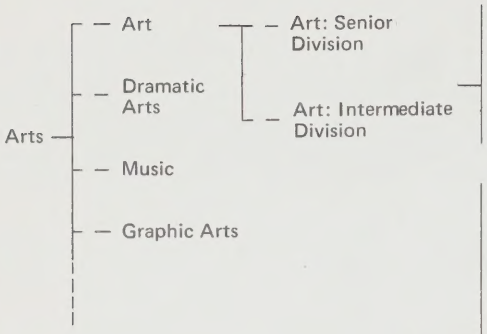


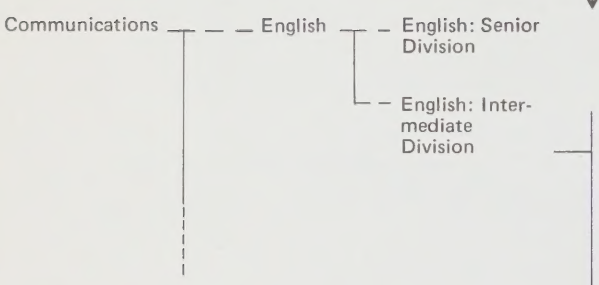
Figure 3: Continued



The studio art program is implemented through projects that may be inserted in the themes-activities table. Students pursue a theme through a series of projects that encompass a variety of art activities. A given theme may occupy a class for a whole term; or students may prefer to work in small groups, each of which examines a different theme.

Activities

Themes	Drawing and Painting	Ceramics	Graphics	Puppetry	Sculpture
The empty room and what to put in it					
Looking at war					
The explorer					
Dreams and visions					



In this program, students acquire an appreciation of our literary heritage and increase their communication skills through integrated learning experiences that are related to their individual needs and interests. A wide range of materials are employed as students pursue a number of themes or elective topics. Such exploration should foster individual growth in the receptive and expressive aspects of communication.

	Receptive Aspects			**Expressive Aspects**			
	Listening	Reading	Viewing	Speaking	Writing	Drama	Film-making
Themes or Elective Topics							

Generally, the delineation of a program structure provides the opportunity to identify, discuss, and relate the various activities operating within the organization in terms of how they function to achieve certain ends.

Identification of a partial program structure will indicate more clearly another purpose of the initial stage: to promote understanding of the E.R.A.S. process as a decision-making tool and outline the activities necessary to make the process function.

The fact that the initial stage is a learning experience should be emphasized. Whenever a program structure is defined in the initial stage, it must be understood that this is an identification and interpretation of the present situation, which can and probably should be changed with subsequent developments. One of the main advantages of identifying a program structure is the opportunity it offers for clarifying and understanding possibilities for improvement.

iii) *Evaluation*
As stated in the Task Force's Working Paper No. 3, *Evaluation in School Systems*, "a pressing need exists to consolidate the various types of evaluation and integrate them into the total structure of an educational resources allocation system".

The achievement of this integration should be the fundamental purpose of the evaluation activities in the initial stage.

The cyclic characteristic of the E.R.A.S. model is supported by evaluation activities. (See Figure 4.) It is critical that those using the E.R.A.S. model as a decision-making, problem-solving process recognize the importance of developing evaluation processes that operate on a regular basis.

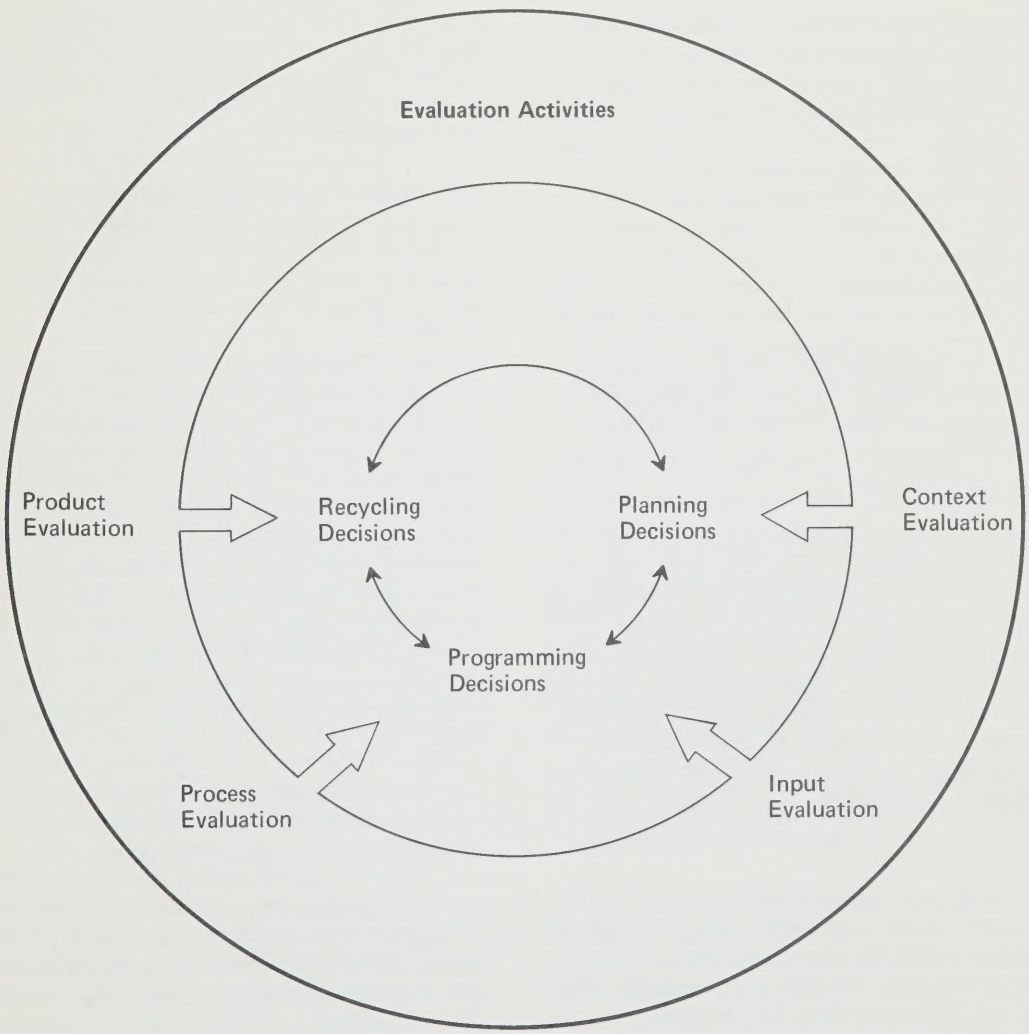


Figure 4: Decision Making and Evaluation in an Educational Resources Allocation System Model

Undoubtedly, many types of evaluation, either formal or informal, have been in effect either throughout the school system as a whole or in those parts under consideration. Some of these will involve "process evaluation"—which will facilitate judgements about the teaching-learning approaches that are being used (or the methods being employed in support activities). Others will involve "product evaluation"—which focuses upon the results of the approaches or methods for assessing student learning.

In both instances, the key questions that should be of assistance in ensuring the integration of E.R.A.S. activities are the following:

1. Are we assessing activities or results in terms of our stated intentions?

2. How will the results of our evaluation help us to improve what we are doing and how we are doing it?

The definition of an E.R.A.S. given on pages 2-3 of this paper includes several aspects of evaluation—for example, the regular assessment of the stated intentions, the methods used for evaluation, and the available resources. Though all of these aspects will not necessarily be required during the initial stage of an E.R.A.S., they can be added as the process becomes cyclical.

An evaluation exercise may be a useful place to implement the initial stage of an E.R.A.S. For example, one could ask, "Are the methods or results that we are assessing consistent with our intentions for the activities being evaluated?" "Do we have other intentions that we are not presently evaluating? "

In other words, evaluation may be the first activity that leads, naturally, to the development of the others. Two data collection devices that may be useful in this activity are the OSSTF Self-Evaluation Kit (with components for the teacher, the subject area, the department, or the school) and the Service for Co-operative Evaluation of School Systems, prepared by the Supervisory Services Branch, Ministry of Education.

iv) *Program Accounting*
Program accounting involves the accounting for monies spent according to the program structure established. While this process can be quite complex and frequently requires the use of a computer to allocate costs according to a previously determined set of guidelines (see Working Paper No. 4—*Program Budgeting and Accounting*), the amount of detail in which program accounting is carried out in the initial stage should be carefully considered with regard to time and utility. It may not be necessary to include indirect costs that are fixed or may require considerable time to identify.

The question to be considered should be, "What cost information will be of value in terms of subsequent decisions?"

Generally, refinement of the information obtained through the program accounting activities should be gradual. It will probably be more satisfactory to provide for the addition of data as such data are required, rather than to accumulate as much information as possible at the outset and spend considerable time deciding how to use it.

The same caution should be exercised regarding the portions of the program structure for which costs are reported. Particularly in the early stages of E.R.A.S. development, much detailed financial information about very specific program elements (*e.g.*, graphing as an element of the mathematics program) may not be very meaningful. Of course, this will depend on the nature of the area to which an E.R.A.S. is applied, but, generally, a "keep it useful and simple" approach would be desirable.

Accounting information is of little use by itself. The other processes involved in the initial stage of an E.R.A.S.—stating intentions, relating them to a structure of activities, assessing these activities from a variety of angles—are required to provide a proper context for cost information.

The Initial Stage: Needs Assessment

Once the four activities just discussed have been carried out, the basic information for the initial stage of E.R.A.S. implementation will have been obtained.

One way of viewing this initial stage is to see it as needs assessment. The "needs" are defined as the difference between the intentions stated and the realities assessed. This determination of the *gap* between "where we want to be" and "where we are" should take place before any decisions are made regarding "where we go from here". The definition of needs assessment here is not the same as the one that appeared in *An Initial Statement* (revised, March 1973). In order to avoid a lengthy explanation of the change in meaning, suffice it to say that needs assessment can be viewed in the following two ways:

1. As forecasting educational needs to be used as a basis for defining goals. (This explanation appears in *An Initial Statement.*)

2. As the identification and analysis of the discrepancies that exist between what is occurring at present and what we aspire to, so that plans can be made to remove any discrepancies.

This identification and analysis of discrepancies results from the four activities of the initial stage of an E.R.A.S. outlined earlier. The initial stage stresses the importance of finding the relationship of goals and objectives to programs, evaluation, and program accounting. What is crucial is that something happen as a result of these activities!

Implementing the Initial Stage of an E.R.A.S.

Using Pilot Areas

To simplify the task of understanding and applying the concepts of an E.R.A.S., some part or parts of the total school system might be considered as pilot areas.

These areas may be changed or expanded after initial consideration, but they can at least serve as specific examples for which ideas can be discussed. Moreover, if the unit is small, many of the problems of internal understanding, communication, and commitment can be overcome more easily.

Some sample pilot areas may include the following: a specific "program" area such as English, Math, Auto Mechanics, etc., in the instructional sphere, or purchasing, transportation, student services, etc., in the support services sphere; a specific school unit or family of schools; a combination of any of the above such as the English programs of a group of schools.

It has been found that the selection of a unit or units that are presently under review or for which such a review is contemplated is very effective. Usually, the kind of activities that such a review would involve are similar to those inherent in an E.R.A.S. It should also be remembered that, if the unit selected as a pilot is less than the whole system, there are limitations in the extent to which the E.R.A.S. processes can be used for decision making. For example, detailed program accounting information is of limited value if it is available only for a portion of the total system. On the other hand, an analysis of the resources for pilot program areas can be very useful as an exercise in planning. Similarly, a consideration of the possible alternatives within one unit will likely depend upon the availability of resources outside that unit. For example, changes in an instructional program or the addition of new programs may be influenced by such support services as professional development, media services, staffing, plant facilities, and so on.

Because of these limitations, schools or families of schools may offer the best opportunities for consideration of the E.R.A.S. processes within the framework of a broad range of activities, both instructional and non-instructional.

The Group Initially Considering E.R.A.S. Activities

Representation from teaching and support staff is very important. Presuming that a pilot area is being used, the nature of this area will be a major factor in determining representation.

One of the most likely groups to consider an E.R.A.S. is one that is involved with classroom activities such as the staff and related support staff of a school.

The sooner that E.R.A.S. concepts can be related to ongoing activities, the better. The E.R.A.S. process should not be viewed as supplemental to the regular planning, operation, and evaluation that take place; instead, it should systematize and co-ordinate such activities.

Activities Beyond the Initial Stage in an E.R.A.S.

It is not the purpose of this paper to examine in detail the other activities that comprise an E.R.A.S. model. (The complete, integrated cyclic model was outlined on pages 2-3 of this paper.) It should, however, be reiterated at this point that the initial stage of E.R.A.S. implementation focuses on the following four activities:

- using written statements of philosophy and intentions to guide the development of activities and the assessment of the success of these activities.
- identifying and describing the activities (educational and supporting) in terms of their relationship to each other and to the statements of philosophy and intentions.
- evaluating:
  a) the statements of philosophy and intentions to see that they are useful and that they relate to student learning requirements;
  b) the activities, to see if they are achieving the desired learning results;
  c) the evaluation procedures themselves: What is being evaluated? When? How? By whom?
  d) the nature and extent of the use of available resources.

The information obtained from evaluation is used for making decisions with respect to (a), (b), (c), (d) above.

- reporting financial information based on the framework, which identifies and classifies the activities being undertaken.

Consideration of the first four conditions provides the means for identifying and clarifying important areas in need of improvement (*i.e.*, the gaps or needs as referred to in Figure 2). Needs must then be listed in order of priority—from the highest to the lowest. This can be accomplished by examining the needs in terms of the philosophy and intentions of both the activities under consideration and the educational system as a whole.

The fifth condition refers partly to establishing the priority of needs: *i.e.*, defining the nature, relevance, and priority of desired improvements.

If such improvements can be defined and described in terms of the desired results, then it is possible, from these specifications, to begin developing and designing activities and experiences for improving the program.

This part of the system is often spoken of as the *analytic process*. This process begins with a search for alternative sets of activities and experiences to meet identified needs and entails the specification of the resource requirements and likely outcomes for each of the alternatives. It is, therefore, not only an analytic activity, but also a creative one.

Indeed, in the total perspective of an educational resources allocation system, which is to provide relevant information for decisions, this analytic activity is crucial. There is no doubt that it is also the most difficult part of an E.R.A.S.

Figure 5 shows the relationship between the needs assessment process (the initial stage of an E.R.A.S.) and the analytical process. Identification of specific needs along with a desire for improvement leads to the search for possible solutions, a search which may result either in the identification of a number of existing and available solutions or in the creation of new and innovative ones. For example, in attempting to increase the level of student activity in the learning process, teachers might conduct a search of existing "packaged" simulation materials, or they might attempt to design their own.

The results of the search process are used in designing programs of action to meet the needs. As shown in Figure 5 (page 12), the feedback resulting from a program of action that is carried out should allow educators to assess their performance and clarify their aspirations.

Identifying and analysing possible course of action and prognosticating possible results

The exercise of finding or developing changes in the activities and experiences in order to improve them involves researching the available educational literature, surveying innovative practices, talking to experts, or visiting other school systems. If such a search does not yield a "pre-packaged" solution, the hard creative work must begin. Techniques such as brainstorming or force-field analysis with people involved in implementing the program may lead to new approaches.

At the same time, insofar as is possible, the effectiveness of the activities developed should be determined. Such a forecast should be reasonably reliable if the program under examination is already in use elsewhere; if, however, it is only at the conceptual stage, the forecast of its effectiveness can only be an educated guess, based on the consistency of the activities and objectives employed.

The analysis should also define what resources are necessary for the operation of the program. A program may be designed to attain various levels of results, but these results can be affected by adding or deleting certain activities. If the set of activities or experiences in the program are changed, the resource requirements for that program will also be changed. The analysis should, therefore, be able to specify what the likely results would be from a given level of resources allocated to the program.

No program operates in a vacuum. There are constraints on the availability of resources. Program implementation will be influenced by the beliefs and attitudes of the personnel responsible, the clientele served, and the community in which it will operate. Good analysis should take these constraints into account.

Finally, those involved in the analysis should choose an appropriate course of action from the alternatives presented; they should also provide a justification for this choice. The remaining basic activities of the E.R.A.S. process involve allocation of resources on the basis of this choice and implementation of the chosen course of action.

As emphasized earlier, evaluation provides the means by which an E.R.A.S. becomes a cyclic system. Each of the component activities of an E.R.A.S. is viewed as a means to another set of activities. In this way the process is continuous, integrated, and systematic as well.

Understanding an E.R.A.S.

Comments about the System

An E.R.A.S. is the adaptation of several systems approaches (*e.g.*, PPBES, MBO, etc.) to an educational setting. It involves an extension of some of these principles, a decrease in the stress on cost benefit and cost effectiveness analysis, and an increased emphasis on evaluation as an aid to decision making to maximize program effectiveness. Definitions of needs and objectives, program evaluation, analysis of resources, constraints, alternatives, long-range forecasts of courses of action, and program development and review are also basic activities of an E.R.A.S.

An E.R.A.S. is designed to improve the decision-making capabilities of personnel in local school jurisdictions so as to further enhance the students' learning experiences.

The understanding, acceptance, and adoption of E.R.A.S. practices will take time, because the success of the systematic approach is directly proportionate to the co-operation and trust that exists among people in the educational unit. *People make ideas work, not the reverse.* And it is entirely reasonable that people will only effect changes of a significant, ongoing nature if they become convinced that the alternative method proposed is an improvement upon the existent one.

The implementation of an E.R.A.S. requires that certain changes be effected. These changes may not be drastic, but they do involve a continuous and conscious effort to co-ordinate the activities for improving service to and in schools. Commitment by educators to these changes indicates their interest in finding better ways to meet existing problems in schools and school systems. In order to obtain such a commitment, there must, first, be a realization by all groups in the system that a co-operative effort is necessary to find better procedures, and, second, be a consensus among the groups as to the values served by the educational organization. If these two conditions exist, then the rational planning process of an E.R.A.S.

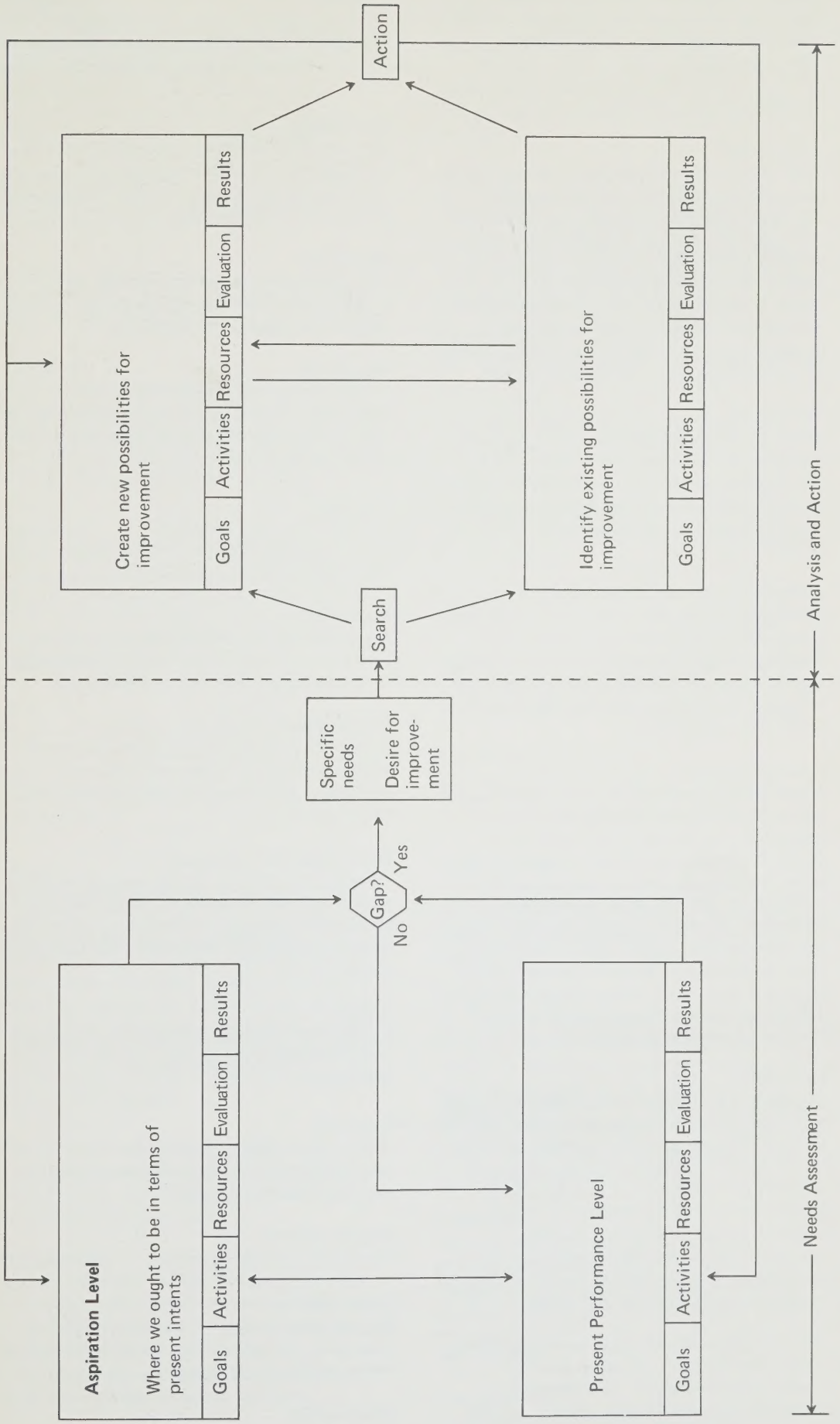


Figure 5: Needs Assessment, Analysis, and Action in an E.R.A.S.

should be helpful in systematic decision making. If one or both factors (general awareness of the problem and consensus on educational values) is not present, then the E.R.A.S. process will either not be implemented or not be effective.

Involvement
While it could be argued that the successful development of an E.R.A.S. requires the involvement of a wide spectrum of people, from the community to the classroom, the initiation of E.R.A.S. activities will not force such involvement if it is not wanted. An E.R.A.S. can, however, be an excellent vehicle for defining roles within the educational community—*i.e.*, for providing information for and involvement in educational decisions.

Techniques
There are no specifically required techniques that must be employed in the development of the E.R.A.S. process. No one method of writing goals and objectives, of conducting evaluations, or of assessing needs is stipulated by the process.

Rather, the selection of any particular technique for any part of the E.R.A.S. process is left entirely up to the people involved. Usually, practices currently in operation can be readily adopted. This matter has already been discussed in the section dealing with implementation (pages 10-11).

Communication
Improvement in and clarification of the lines of communication in all areas of the school community can be one of the results of an E.R.A.S. Information regarding problems and goals, decisions concerning these; and the rationale for such decisions must be communicated. However, as in the case of increased involvement, such improvements will not take place automatically. A continuous, conscious effort will have to be made in order to build a vehicle for communication into all of the integrated activities of an E.R.A.S.

Summary

This paper has attempted to discuss the concept of an educational resources allocation system in terms of its application to an existing school or school system. In order to do this, the paper first offered a definition of an E.R.A.S., by listing a series of characteristics that would be present if an E.R.A.S. were in practice. Attention was focused upon suggestions for developing and implementing the initial stage or needs assessment aspect of the system.

The next section briefly dealt with the analytic aspect of an E.R.A.S., in which alternatives for meeting identified needs were defined and analysed, a course of action selected, and the chosen solution implemented.

It concludes by offering both a glossary of terms relevant to education and to an E.R.A.S. and a list of readings that will be useful to those interested in pursuing the topic of systematic decision making.

Glossary

A brief explanation of the terms used in the E.R.A.S. literature is provided below:

Accounting
The process of gathering, recording, classifying, and reporting information on the financial position and operations of a school jurisdiction or any of its components.

Allocation
The distribution of human, material, and financial resources among programs in order to achieve stated goals and objectives.

Alternative
One of two or more possibilities. The application of E.R.A.S. concepts often involves the consideration of possible goals, means, and evaluation procedures.

Assessment
a) a synonym for evaluation;
b) a cost estimate charged to a particular budget category.

Budgeting
The process of determining the resources available to an organization and allocating them on a planned basis within the organization.

Cost Benefit Analysis
A method of measuring in monetary terms the value of a program in relation to its cost. Analysis of this nature has limited application to education.

Cost Effectiveness Analysis
A method of determining the most efficient mix of resources to achieve a stated objective by measuring resources in monetary terms and progress towards the objective in non-monetary terms.

Criteria
Principles or standards used in determining the relative utility or appropriateness of alternatives.

Crosswalk
A chart showing in monetary terms the relationship between the resources employed and the programs operated.

Decision Making
The process of making choices.

Direct Costs
An expenditure made for a resource that may reasonably and conveniently be identified as being employed in a program.

Effectiveness
The degree of success in achieving goals and objectives.

Efficiency
Maximization of results from a given level of resources or the minimization of resources employed in achieving a stated level of results.

Evaluation
The identification, collection, and presentation of information that enables decision makers to select and conduct courses of action. Sometimes the term evaluation is used to encompass the actual decision that may arise from the utilization of the information.

Evaluation, Formative
Evaluation directed towards the development of present or future programs.

Evaluation, Summative
Evaluation directed towards determining the merit of a program.

Feedback
Information about a process, used to co-ordinate and control that process. The notion of feedback becomes useful when one has a clear and comprehensive understanding of a process and its performance indicators.

Functions
Major areas of responsibility within an educational jurisdiction as outlined in the Ontario Ministry of Education's "Uniform Code of Accounts". Instruction and Business Administration are examples of the areas of responsibilities.

Goal
A statement of broad direction, purpose, or intent eluding direct quantification. Goals of education should be based on identified student needs and defined in terms of pupil growth and development.

Inputs
Resources that are employed in any process.

Line-Item Budgeting and Accounting
A form of budgeting and accounting based upon specific line items contained within the objects of expenditure. For example, object of expenditure: salaries; line items contained within this object of expenditure: administrative personnel, principals, teachers, secretarial, para-professional staff.

Management by Objectives (MBO)
A method of co-ordinating and controlling the activities of an organization in terms of its stated goals and objectives.

Measurement
Ascertaining the extent or quantity of an object or action by comparison with a fixed unit.

Model
A representation of reality that describes or simulates an actual system or situation.

Multi-Year Financial Plan
A plan of two or more years to guide the financial operations of an educational system. The plan attempts to forecast the financial impact of current decisions. The plan is outlined to reflect changes in the cost of programs over the period of the forecast.

Need
The discrepancy that exists between a desired situation and the present situation.

Needs Assessment
The process of identifying needs, an evaluation activity.

Objective
A statement of intent or expectation to be achieved within a specified period of time. An objective is expressed in such a way as to be assessable and capable of appraisal in terms of changing goals and student needs.

Outputs
The results or outcomes of an action or process.

Performance
The level of achievement in relation to objectives.

Planning
The process of identifying needs and using these to formulate the goals and objectives of an organization.

Program
A group of school activities and/or services designed to accomplish or contribute to the accomplishment of a goal/objective or set of goals/objectives through a combination of personnel, facilities, equipment, and supplies.

Programming
Developing descriptions of definite plans to achieve specified objectives with due consideration of alternatives.

Program Budget
A financial statement that indicates in monetary terms how available resources are to be allocated to the programs offered in order to achieve the organization's goals and objectives.

Program Structure
A systematic organization of all the programs offered within an educational unit. The structure indicates the relationship among the programs and between the educational unit's goals and objectives. The most frequently used terms to describe the levels of the hierarchy in a program structure are program, sub-program, and program element.

Prorating
The allocation of a portion of the total monetary value of a resource to two or more programs in proportion to the amount of the resource consumed by the programs in which it was employed. Prorating is a synonym for apportioning.

Recycling
The process of reconsidering goals, means, and evaluation procedures arising out of the assessment of a program and student performance.

Resources
Ideas, people and their time, facilities, materials, and finances available to a school system.

System
A set of interdependent relationships among resources employed for some purpose (school system); an organized set of ideas (number system); or an accepted way of doing something.

Some Readings

In addition to the E.R.A.S. documents previously printed, *An Initial Statement* and Working Papers No's. 1-4, the following list of references relates to the development and implementation of a systematic decision-making process:

Alioto, R. F., and Jungherr, J. A. *Operational PPBS for Education*. New York: Harper & Row Publishers, 1971.

Curtis, W. H. *Educational Resources Management System.* Chicago: Research Corporation of the Association of School Business Officials, 1971.

Greenfield, T. B., *et al. Developing School Systems.* Toronto: The Ontario Institute for Studies in Education, 1969.

Hartley, H. J. *Educational Planning-Programming-Budgeting: A Systems Approach.* Englewood Cliffs, N.J.: Prentice-Hall, 1968.

Kaufman, R. A. *Educational System Planning.* Englewood Cliffs, N.J.: Prentice-Hall, 1972.

Levine, D. "Achieving Balanced Implementation of Program Budgeting for Education." Paper presented to the 1971 annual meeting of the American Educational Research Association. Santa Monica, Calif.: Rand Corp., 1971.

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Service for Co-operative Evaluation of School Systems. Toronto: Supervisory Services Branch, Ministry of Education, Ontario, 1974.

The following references relate to the concept of needs assessment that has been referred to in this paper:

A Look into Your School District. Englewood, Colo. CFK., n.d.

A short booklet useful for those considering the undertaking of a survey. It discusses questionnaire design, sample determination, interviewing, and data processing. Available from CFK Ltd., 333 South Bannock Street, Englewood, Colorado, 80110, U.S.A.

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Hoepfner, R., *et al.* "National Priorities for Elementary Education". *CSE Monograph Series on Evaluation*, no. 2. Los Angeles, Calif.: Center for the Study of Evaluation, University of California, 1973.

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Somwaru, J. P. "A School Board Consults Its Consumers". *Education Canada* XI (September 1971), pp. 20-25.

Sweigert, R. T., Jr. "Assessing Educational Needs to Achieve Relevancy". *Education* XCI (April-May 1971), pp. 315-318.

Weaver, W. T. "The Delphi Forecasting Method". *Phi Delta Kappan* (January 1971), pp. 267-271.